



A Boon For Atrophied Ridges – Classification And Review Of Basal Implants

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Abstract

The main motto of implant is to replace the missing teeth. To overcome the drawbacks of the endosseous implants like insufficient bone, resorbed ridges, etc and to avoid extensive surgical procedures like sinus lifts, bone augmentations, etc. Basal implants came as a rescue which are flexible enough to accommodate any situation. Though this article, we reviewed history, rationale, types, indications and contraindications and surgical technique of basal implants.

Keywords: basal implants, inadequate bone, atrophied ridges

Introduction

Basal implants can be considered as a boon for edentulous patients with reduced or inadequate bone height without any need of bone augmentation procedure as these implants are uniquely and specifically designed for the sole purpose of giving anchorage from the basal cortical bone and have gone through several changes and modifications in the past several decades¹. It is also known as cortical or bicortical implant system, and also known as lateral implants or disk implants. They are advanced single piece cortical dental implants with immediate loading protocol².

The basal implants have emerged a lot of sophisticated yet with a simple design, surgical protocol and is a prosthetic friendly system³.

This article will review about history, rationale, types and surgical techniques of basal implants.

History

First single piece implant was developed by Dr. Jean –Marc Julliet in 1972. It had been improved with matching surgical tools and prosthetic superstructure by French dentist Dr. Gerard Scortecchi in the mid-1980's which he called as "Disk implants"⁴.

BOI / Lateral implants were designed to allow masticatory load transmission in the vertical as well as its basal part⁵.

Basal implants with polished surfaces since 2003.

Because basal implantology includes the application of the rules of orthopedic surgery, they are also known as "orthopedic implant" to mark a clear distinction between them and the well known term "dental implant"⁶.

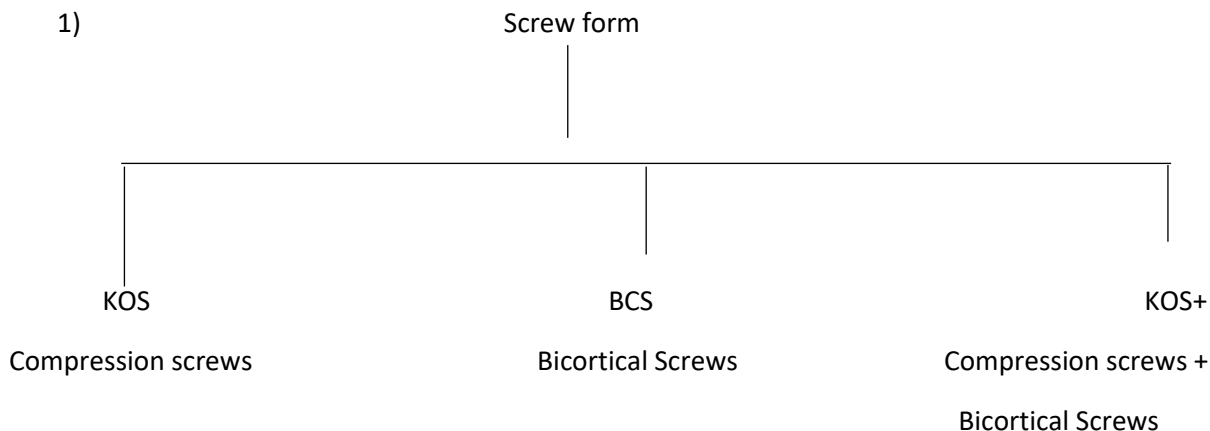
Rationale

Basal bone lies below the alveolar bone and is less prone to bone resorption and infections, because of its highly dense structure.

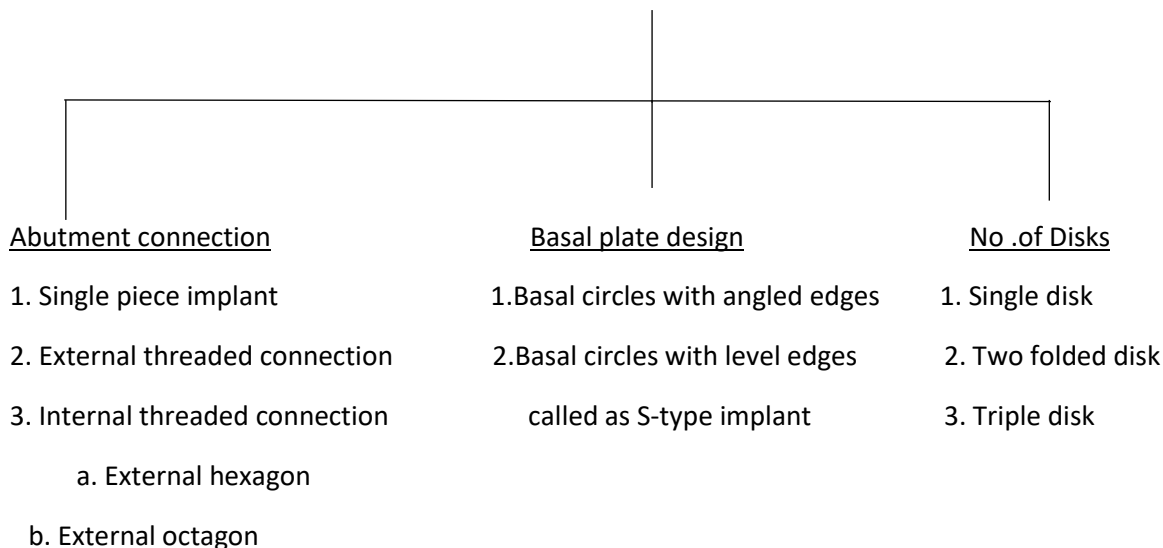
Implants which take support from basal bone after an excellent and long lasting solution for tooth loss and the load bearing capacities of the cortical bone are **Classification** ⁴

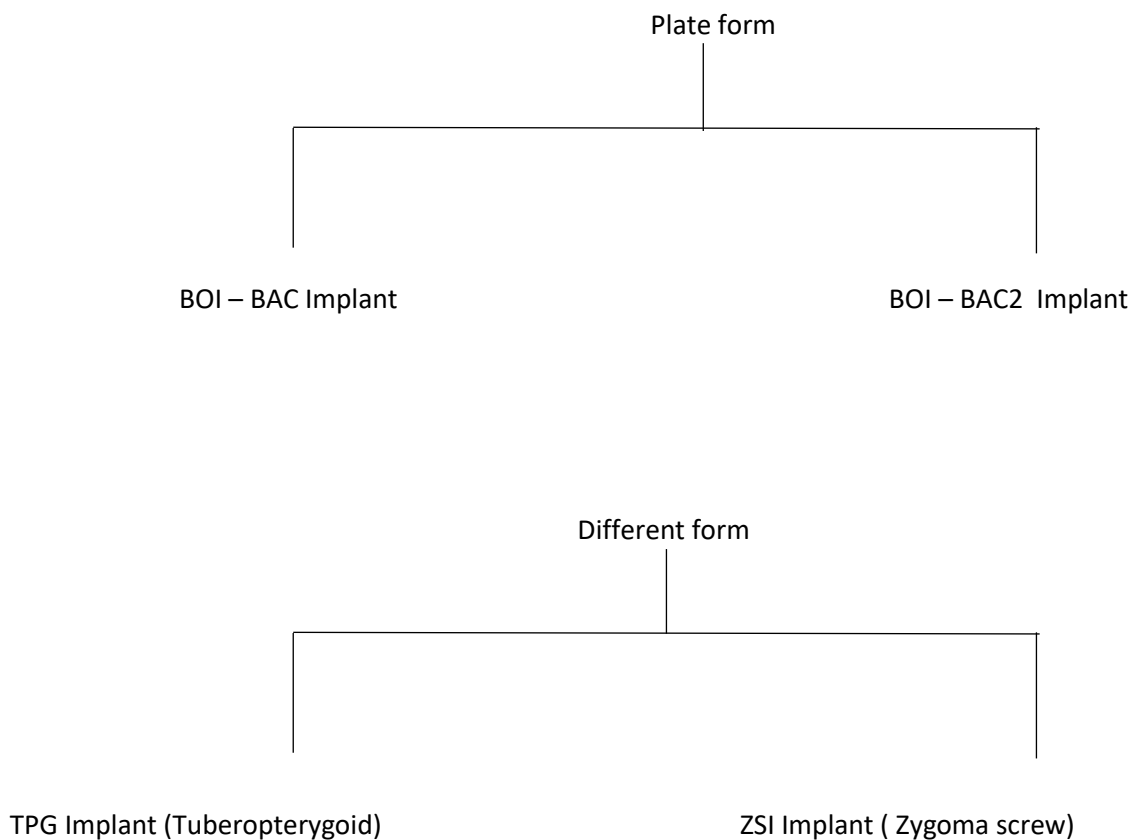
many times higher than those of spongy bone ⁶. These can be loaded immediately within 72 hours ⁷.

Types of Basal implants – Morphology



Disc form (BOI/TOI/Lateral implant)





Indications⁸

1. Situations like many missing teeth or requiring extracted
2. Failure of 2-stage implant placement or bone augmentation procedure
3. Any kinds of bone atrophies i e, - Very thin ridge (high knife ridge, wherever crestal buccopalatal bone thickness is < 2 mm; pencil mandible). - Inadequate bone height.

Contraindications⁸

1. Heavy bruxism, clenching, uncontrolled malocclusion, and/or a history of fractured teeth, particularly related with psychological issues.
2. High-dose IV bisphosphonates utilized in the treatment of severe osteoporosis or cancer (risk of osteonecrosis of the jaw).
3. Facial and trigeminal neuropathies associated with a depressive state, epilepsy

Surgical Technique⁹:

Pre operative

Routine investigations like OPG and blood investigations

Informed consent

IOPA, CBCT if required

Antibiotic prophylaxis

Intra operative⁶

1st day

LA 2% lignocaine with adrenaline 1:80000 dilution

No nerve blocks are preferred to response of nerves during procedure

Implants can be placed using a flapless immediate procedure

Maxillary and mandibular impressions taken

Tentative jaw relations

2nd day

Adjustment of metal framework

Metal try-in

Definitive intermaxillary records

3rd day

All the implants were functionally loaded with FPD, providing bilateral balanced occlusion.

Key Considerations ¹:

Systemic Considerations ^{10, 11}

These can be used in patients with smoking habit unlike endosseous implants as osseointegration is not required. And can be used in diabetic patients as well if there glucose levels are in control. They cant be used in recent myocardial infarction, cerebrovascular accident, chemoradiotherapy, immunosuppressant therapy and bisphosphonate therapy.

Biomechanical considerations ¹²

Similar to these implants, bone is a viscoelastic structure. Consequently, the stress shielding dodged.

Conclusion :

For re-establishing atrophic jaws, basal implants have become a suitable choice due to the innovative work these implant have gone through as it don't need augmentations and that they can be immediately loaded and it follows the guideline "primum Nihil Nocere" i.e., "First Do No Harm". We have attempted to simplify and arrange different types of basal implants for better understanding of the concept of the existing designs and implications of each implant design along with a note on indications and contraindications. As the prosthesis is given with occlusal loading within 72 hours , the protocols can be easily accepted by patients.

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